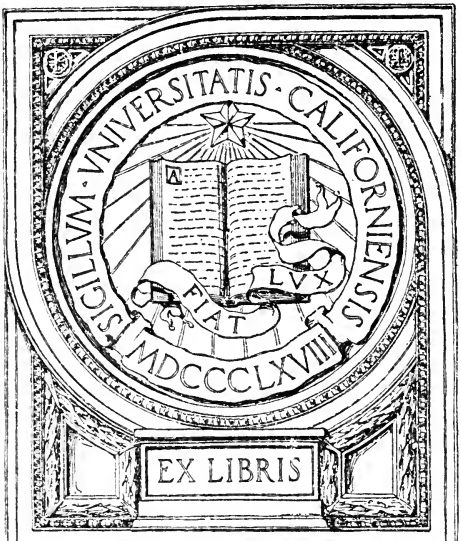
HB
1357
.N5R7

Y.C 76088

GIFT OF



EX LIBRIS

SEP 3 1913

AN INVESTIGATION INTO THE MORTALITY RATES OF THE CITY OF NEW YORK

BY

JOHN F. ROCHE

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

Reprinted from *Transactions* of the Actuarial Society of America,

No. 29

HB 1357
.N5R7

GIFT OF PROF. WHITNEY

UNIV. OF
CALIFORNIA

UNIV. OF CALIFORNIA

An Investigation into the Mortality rates of the City of New York.

JOHN F. ROCHE.

Each decennial census of Great Britain, from that of 1841 to that of 1891, has, with few exceptions, been followed by a thorough investigation into the mortality rates of the people at the time of the enumeration. Dr. Farr made the first three of these investigations, which are summed up in what are known to us as Farr's English Tables Nos. 1, 2, and 3, and which set forth the mortality rates of the English people for the years 1841-1851. The English Table No. 4 was the result of the labors of Dr. Ogle, Farr's successor, and was based upon the census returns of 1871 and 1881, and the deaths for the ten years, 1871-1880. Dr. Tatham constructed the English Table No. 5 from the enumerations of 1881 and 1891, and the deaths for the years 1881-1890.

These tables show a constant decrease in the death rates and a corresponding increase in the Expèctation of Life at birth, which rises from 39.91 years and 41.85 years, males and females respectively, as given in Farr's Table No. 3, to 43.66 years and 47.18, respectively, as found by Dr. Tatham. This is a gain of 3¾ years for males and 5⅓ years for females. The last English Table shows an improvement over its predecessors in the Expectation of Life at every age from birth to 26; but at the older ages it develops a decrease in the span of life, due, it seems to me, not to any deterioration of the people, but to the continual outflow of young, strong lives from the mother country to the various colonies and to the States.

It is only by such studies as these that the Executives in charge of the health of a community are enabled to keep their fingers upon the public pulse, and note the effects of every advance in medicine and surgery, and the effects of every improvement in sanitation.

Including that of 1900, there have been made twelve enumerations of the people of the United States. Much data and valuable information have been gathered regarding the population and deaths, but we have thus far contented ourselves with mere guesses as to the possible trend of the death rates.

267079

The vital statistics of no period have been crystalized into a mortality table. It is unfortunate that such is the case, but it is to be hoped that the Census Bureau, which has been lately made a permanent institution, will in the near future set before us a table describing the mortality rates of our people at the beginning of this, the twentieth, century. I should indeed be pleased to have the honor of constructing the American Table No. 1, but such a task is far too great for the time at my disposal. I have determined, however, to lay before the Society an investigation into the mortality rates of some community large enough to give an average, and for this purpose have chosen that of the City of New York, whose vital statistics are near at hand.

My request for the population figures of New York, as found by the enumeration of 1900, was met with consideration by Mr. Merriam, the Commissioner of the Census Bureau; and we are under obligations to Mr. King, the Chief Statistician for Population of the same Bureau, for the figures given in Table A. In his remarks upon population, Mr. King says that the people of our country are as prone as those of any other to give their ages in round numbers, and that, notwithstanding the care taken, slight congestions in the figures appear at the quinquennial ages. The disturbances consequent upon these congestions could to a great extent be avoided if our statisticians would make the quinquennial the central age rather than one of the terminal ages of the quinquennial group.

A glance at Table A shows that more boys than girls are born in New York, but that the boys seem less able than the girls to resist the ills of infancy. At about the age of 7, the girls outnumber the boys, and are in numerical excess at every age up to that of about 28. From age 29 to 56, the males are more numerous than the females; but from this latter point until the end of the table the women again outnumber the men. All in all, there were nearly 26,000 more women than men in New York in 1900.

At the time of the enumeration, there were in this city 3,693 men who did not know their ages, while, contrary to all accepted tradition, there were less than half as many women, or only 1,743, who had forgotten theirs. Before using the figures of Table A, these "unknown" were distributed among their respective kinds, pro rata, beginning with the age group 15-19.

TABLE A.

Population of the City of New York.

Age Groups	Males	Females
0—1	43,765	42,832
1—4	155,918	154,772
5—9	177,591	177,156
10—14	149,906	151,358
15—19	140,670	162,081
20—24	161,988	192,853
25—29	178,390	185,003
30—34	164,788	153,172
35—39	146,737	133,055
40—44	114,358	99,895
45—49	80,264	77,157
50—54	66,231	64,680
55—59	44,878	45,450
60—64	33,814	37,141
65—69	19,934	23,577
70—74	12,981	15,737
75—79	6,236	8,272
80—84	2,570	3,761
85—89	786	1,303
90—94	167	379
95—99	34	104
100 and over	6	16
Unknown	3,693	1,743
Total	1,705,705	1,731,497

TABLE B.

Deaths in the City of New York.

Age Groups	Males			Females		
	1899	1900	1901	1899	1900	1901
0	8,505	9,210	8,464	6,876	7,430	7,003
1	2,382	2,588	2,460	2,112	2,298	2,229
2	1,014	1,114	983	927	1,033	916
3	592	689	655	628	615	593
4	383	405	478	382	454	475
0—4	12,876	14,006	13,040	10,925	11,830	11,216
5—9	924	1,046	1,141	891	1,027	989
10—14	381	431	467	407	432	437
15—19	641	677	712	646	712	690
20—24	1,211	1,360	1,347	1,314	1,343	1,249
25—34	3,814	4,095	4,269	3,045	3,297	3,204
35—44	4,120	4,527	4,797	2,857	3,080	3,163
45—54	3,619	3,951	4,042	2,599	2,937	2,903
55—64	3,213	3,398	3,740	2,950	3,166	3,378
65—74	2,617	2,781	2,773	2,714	2,838	3,096
75—84	1,300	1,403	1,426	1,500	1,710	1,830
85 and over	271	303	290	508	522	521
Total	34,987	37,978	38,044	30,356	32,894	32,676

The deaths for the years 1899, 1900, and 1901, as exhibited in Table B, were taken directly from the annual reports of the City Health Department. It is probably owing to the paucity of numbers that the age groups in these reports are made to terminate with the group 75-84. There would have been added interest to our investigation if these groups had been carried forward to even that of 85-94. We should then be able to discover with greater exactness the death rates peculiar to the people of the community at the extreme old ages. As it is, we must, from age 85 to the end of the table, make use of an approximation.

The census enumeration of New York was presumably made on June 1, 1900; and to obtain the deaths for a year, in which June 1 would be the center, a uniform distribution throughout the calendar year was assumed. The death rate for 1899 being somewhat low, and that for 1900 being correspondingly high, it was judged that a fair average could be obtained by grouping together the deaths of two years. There were taken, therefore, one-half of the deaths of the year immediately preceding, and of the year immediately succeeding, June 1, 1900. The average death rate thus derived was 21.76 per thousand for males, 18.54 per thousand for females, and 20.14 per thousand for the entire population.

The death rates per thousand of the *entire* population for the years 1898, 1899, 1900, and 1901, are as follows:

1898.....20.26
1899.....19.47
1900.....20.57
1901.....20.00

Having the population and deaths in the form described, the manner of constructing the mortality table was next considered. The method used by Milne in the formation of the Carlisle Table seemed to be the easiest of application, and the one best adapted to retaining the distinctive features of the data. It was therefore selected. The fact that Mr. King, of the Census Bureau, gave the number living for the age 0-1, was of the greatest help in drawing the population curves at the infantile ages. The values of the ordinates of the population and death curves are set forth in Table C.

TABLE C.

Populations and Deaths Distributed for Each Age.

Age	Males		Females	
	Population	Deaths	Population	Deaths
0	43,765	8,849	42,830	7,180
1	40,495	2,501	40,650	2,230
2	39,330	1,058	39,000	978
3	38,495	654	38,020	614
4	37,600	413	37,100	438
5	37,000	325	36,600	315
6	36,400	250	36,210	235
7	35,710	195	35,800	185
8	34,760	150	34,850	140
9	33,720	110	33,700	105
10	32,010	85	32,400	85
11	30,700	70	30,800	70
12	29,700	79	29,400	76
13	29,050	90	29,260	90
14	28,450	100	29,500	105
15	28,000	110	30,210	115
16	27,810	120	31,010	125
17	27,900	130	32,300	135
18	28,400	145	33,700	145
19	29,000	169	35,100	168
20	29,900	199	36,600	207
21	31,050	234	38,200	245
22	32,450	265	39,280	275
23	34,000	295	39,700	288
24	35,100	320	39,350	300
25	36,040	350	38,680	307
26	36,120	370	38,020	315
27	36,200	385	37,400	320
28	35,650	395	36,300	327
29	34,940	405	34,870	335
30	34,310	415	33,320	330
31	33,650	420	31,620	325
32	33,040	430	30,300	320
33	32,450	435	29,460	315
34	31,860	445	28,690	310

TABLE C—*Continued.*

Age	Males		Females	
	Population	Deaths	Population	Deaths
35	31,260	454	27,890	307
36	30,550	459	26,990	306
37	29,800	464	26,050	305
38	28,520	469	25,150	305
39	27,070	464	24,200	304
40	25,700	449	23,240	304
41	24,400	440	21,940	303
42	23,120	430	20,580	302
43	21,600	420	19,200	300
44	19,900	415	18,050	296
45	18,690	407	17,350	292
46	17,540	403	16,700	283
47	16,590	400	16,000	275
48	15,690	396	15,340	270
49	14,830	391	14,580	270
50	14,140	386	13,900	275
51	13,440	380	13,160	282
52	12,730	375	12,410	287
53	12,010	370	11,600	295
54	11,300	365	11,000	302
55	10,780	360	10,480	310
56	10,060	356	10,020	316
57	9,400	352	9,550	325
58	8,740	350	9,080	327
59	8,060	346	8,580	325
60	7,520	340	8,100	320
61	6,960	336	7,600	315
62	6,390	330	7,040	310
63	5,790	325	6,460	301
64	5,240	320	5,800	298
65	4,820	315	5,460	295
66	4,480	305	5,150	293
67	4,090	300	4,820	291
68	3,750	295	4,480	290
69	3,390	285	4,130	287
70	3,080	275	3,780	285
71	2,790	265	3,420	283
72	2,500	249	3,060	280
73	2,200	229	2,710	277
74	1,920	214	2,360	275

TABLE C—*Continued.*

Age	Males		Females	
	Population	Deaths	Population	Deaths
75	1,680	200	2,120	255
76	1,480	185	1,860	230
77	1,260	170	1,630	210
78	1,050	160	1,420	190
79	870	145	1,240	170
80	720	130	1,050	152
81	580	115	880	136
82	480	102	730	120
83	400	90	610	110
84	310	80	510	100
85	250	85 and over	410	85 and over
86	200	291	320	518
87	150		250	
88	110		190	
89	80		140	
90	60		100	
91	45		90	
92	30		70	
93	20		60	
94	15		55	
95	11		45	
96	8		30	
97	6		15	
98	5		9	
99	4		5	
100	3		4	
101	2		3	
102	1		3	
103			3	
104			2	
105			1	
Total	1,705,725	37,118	1,731,495	32,110

The central death rate, m_x, for both males and females, having been derived from the data in Table C, by dividing the deaths at each age by the population at the corresponding age, this function was plotted out on cross-ruled paper, and found to run fairly well; so well, indeed, that further adjustment was deemed unnecessary for the purpose in hand. Then by means of the formula $p_x = \frac{2-m_x}{2+m_x}$ the probability of living a year, p_x, was worked out for each age as far as age 84. It was noticed, in comparing the results thus obtained with Farr's No. 3 Table, that the male p_x in our table gradually decreased from 100 per cent. of the English male p_x at age 24, to about 96 per cent. at age 81, where the decrease seemed to halt and the percentage evinced a tendency to remain constant. Consequently, the p_x for males in the New York Table was carried forward from 85 to the limiting age, 103, by taking 96 per cent. of the male p_x in the English Table, a rough, but an effective, approximation.

A closer relation was observed to exist between the p_x for females in the New York and English Tables. From age 39 to 84 the p_x for New York females was pretty constantly 99 per cent. of the p_x for the English females, and the local table was, therefore, completed by taking 99 per cent. of the female p_x in Farr's No. 3 from age 85 to the end. In our table the limiting age for females is 105. Having p_x for each age, the mortality tables D and E were constructed from the arbitrary radix, 100,000 births, each.

Putting these two mortality tables, D and E, side by side, it is seen that out of every one hundred girls born in New York, eighty-four attain their first birthday, whereas only eighty-one boys out of every hundred born therein have the like good fortune. With the exception of ages 4 and 14, where evident irregularities, due to lack of perfect adjustment, appear, the chances of attaining the next birthday are ever in favor of the girls. At age 44 there are but half of the 100,000 male births surviving, while it takes death 50 years to effect a similar reduction among the females. The average girl of our city can, upon opening her eyes for the first time, look forward to a span of life four years in excess of that allotted to her brother, the Expectation of Life at birth being 42.96 years for the former, and only 38.95 years for the latter.

TABLE D.

Mortality Table.

(Males.)

Age x	l_x	d_x	p_x	Expectation of Life.
				Years.
0	100,000	18,363	.81637	38.95
1	81,637	4,891	.94009	46.59
2	76,746	2,037	.97346	48.53
3	74,709	1,259	.98315	48.84
4	73,450	802	.98908	48.67
5	72,648	635	.99126	48 20
6	72,013	493	.99315	47 62
7	71,520	390	.99455	46.95
8	71,130	307	.99569	46.20
9	70,823	230	.99675	45.40
10	70,593	188	.99734	44.55
11	70,405	161	.99772	43.66
12	70,244	188	.99732	42.76
13	70,056	217	.99690	41.88
14	69,839	244	.99650	41.01
15	69,595	273	.99608	40.15
16	69,322	298	.99570	39.30
17	69,024	321	.99535	38.47
18	68,703	350	.99490	37.65
19	68,353	397	.99419	36.84
20	67,956	451	.99336	36.05
21	67,505	507	.99249	35.29
22	66,998	545	.99186	34.55
23	66,453	574	.99136	33.83
24	65,879	598	.99092	33.12
25	65,281	631	.99034	32.42
26	64,650	659	.98981	31.73
27	63,991	677	.98942	31.05
28	63,314	698	.98898	30.38
29	62,616	721	.98848	29.71
30	61,895	745	.98797	29.05
31	61,150	758	.98760	28.40
32	60,392	781	.98707	27.75
33	59,611	794	.98668	27.11
34	58,817	816	.98613	26.47

TABLE D—*Continued.*

MORTALITY TABLE.

(MALES.)

Age x	l_x	d_x	p_x	Expectation of Life
				Years.
35	58,001	836	.98558	25.83
36	57,165	852	.98509	25.20
37	56,313	870	.98455	24.58
38	55,443	904	.98369	23.96
39	54,539	927	.98301	23.34
40	53,612	931	.98264	22.74
41	52,681	941	.98213	22.13
42	51,740	954	.98157	21.53
43	50,786	978	.98075	20.92
44	49,808	1,029	.97935	20.32
45	48,779	1,051	.97845	19.74
46	47,728	1,084	.97728	19.16
47	46,644	1,111	.97618	18.60
48	45,533	1,135	.97507	18.04
49	44,398	1,156	.97396	17.49
50	43,242	1,165	.97307	16.94
51	42,077	1,173	.97212	16.40
52	40,904	1,187	.97097	15.85
53	39,717	1,205	.96966	15.31
54	38,512	1,224	.96821	14.78
55	37,288	1,225	.96716	14.24
56	36,063	1,254	.96523	13.71
57	34,809	1,280	.96324	13.19
58	33,529	1,316	.96074	12.67
59	32,213	1,354	.95797	12.17
60	30,859	1,364	.95579	11.68
61	29,495	1,390	.95286	11.20
62	28,105	1,415	.94966	10.73
63	26,690	1,457	.94540	10.27
64	25,233	1,495	.94074	9.83
65	23,738	1,502	.93672	9.42
66	22,236	1,464	.93416	9.02
67	20,772	1,470	.92925	8.62
68	19,302	1,461	.92431	8.24
69	17,841	1,439	.91932	7.88

TABLE D—*Continued.*

MORTALITY TABLE.

(MALES.)

Age x	l_x	d_x	p_x	Expectation of Life.
				Years.
70	16,402	1,402	.91453	7.52
71	15,000	1,360	.90933	7.18
72	13,640	1,294	.90512	6.85
73	12,346	1,227	.90061	6.51
74	11,119	1,174	.89442	6.17
75	9,945	1,117	.88764	5.84
76	8,828	1,039	.88235	5.52
77	7,789	984	.87361	5.19
78	6,805	964	.85841	4.87
79	5,841	899	.84615	4.59
80	4,942	818	.83439	4.33
81	4,124	744	.81960	4.09
82	3,380	649	.80791	3.88
83	2,731	552	.79775	3.69
84	2,179	474	.78228	3.50
85	1.705	391	.77070	3.33
86	1,314	317	.75877	3.17
87	997	253	.74628	3.02
88	744	198	.73341	2.87
89	546	153	.72000	2.74
90	393	115	.70642	2.61
91	278	86	.69224	2.48
92	192	62	.67781	2.36
93	130	44	.66292	2.25
94	86	30	.64804	2.15
95	56	21	.63155	2.04
96	35	13	.61665	1.96
97	22	9	.60000	1.82
98	13	5	.58473	1.73
99	8	3	.56597	1.50
100	5	3		1.10
101	2	1		
102	1	1		

TABLE E.

MORTALITY TABLE.

(FEMALES.)

Age x	l_x	d_x	p_x	Expectation of Life.
				Years.
0	100,000	15,468	.84532	42.96
1	84,532	4,514	.94660	49.73
2	80,018	1,982	.97523	51.50
3	78,036	1,251	.98397	51.80
4	76,785	901	.98826	51.64
5	75,884	650	.99143	51.24
6	75,234	487	.99353	50.68
7	74,747	386	.99484	50.01
8	74,361	298	.99599	49.27
9	74,063	231	.99688	48.46
10	73,832	193	.99738	47.61
11	73,639	167	.99773	46.74
12	73,472	190	.99742	45.84
13	73,282	226	.99692	44.96
14	73,056	259	.99645	44.10
15	72,797	277	.99620	43.25
16	72,520	292	.99598	42.41
17	72,228	301	.99583	41.58
18	71,927	309	.99571	40.76
19	71,618	342	.99522	39.93
20	71,276	402	.99436	39.12
21	70,874	453	.99361	38.34
22	70,421	492	.99302	37.58
23	69,929	505	.99278	36.84
24	69,424	527	.99241	36.11
25	68,897	545	.99209	35.38
26	68,352	565	.99174	34.66
27	67,787	578	.99148	33.94
28	67,209	603	.99103	33.23
29	66,606	637	.99044	32.52
30	65,969	650	.99015	31.83
31	65,319	668	.98977	31.15
32	64,651	679	.98950	30.46
33	63,972	680	.98937	29.78
34	63,292	680	.98925	29.09

TABLE E—*Continued.*

MORTALITY TABLE.

(FEMALES.)

Age x	l_x	d_x	p_x	Expectation of Life
				Years.
35	62,612	686	.98905	28.41
36	61,926	699	.98872	27.71
37	61,227	713	.98836	27.03
38	60,514	730	.98794	26.34
39	59,784	746	.98752	25.65
40	59,038	767	.98700	24.97
41	58,271	799	.98628	24.29
42	57,472	837	.98544	23.62
43	56,635	878	.98449	22.97
44	55,757	907	.98373	22.32
45	54,850	915	.98331	21.68
46	53,935	907	.98319	21.04
47	53,028	904	.98296	20.39
48	52,124	910	.98255	19.74
49	51,214	940	.98165	19.08
50	50,274	985	.98041	18.43
51	49,289	1,045	.97880	17.78
52	48,244	1,103	.97713	17.16
53	47,141	1,184	.97489	16.55
54	45,957	1,245	.97292	15.96
55	44,712	1,303	.97085	15.39
56	43,409	1,348	.96895	14.84
57	42,061	1,407	.96654	14.30
58	40,654	1,438	.96462	13.78
59	39,216	1,458	.96282	13.26
60	37,758	1,463	.96126	12.76
61	36,295	1,474	.95939	12.25
62	34,821	1,500	.95692	11.75
63	33,321	1,517	.95447	11.25
64	31,804	1,593	.94991	10.77
65	30,211	1,589	.94739	10.31
66	28,622	1,583	.94468	9.85
67	27,039	1,584	.94140	9.40
68	25,455	1,596	.93730	8.95
69	23,859	1,602	.93284	8.52

TABLE E—*Continued.*

MORTALITY TABLE.

(FEMALES.)

Age x	l_x	d_x	p_x	Expectation of Life.
				Years.
70	22,257	1,617	.92734	8.10
71	20,640	1,640	.92054	7.69
72	19,000	1,662	.91250	7.31
73	17,338	1,686	.90276	6.96
74	15,652	1,723	.88989	6.66
75	13,929	1,580	.88654	6.42
76	12,349	1,438	.88354	6.18
77	10,911	1,321	.87897	5.93
78	9,590	1,203	.87459	5.68
79	8,387	1,076	.87170	5.42
80	7,311	987	.86501	5.14
81	6,324	907	.85654	4.87
82	5,417	823	.84810	4.60
83	4,594	760	.83458	4.33
84	3,834	685	.82143	4.09
85	3,149	602	.80868	3.87
86	2,547	518	.79676	3.67
87	2,029	438	.78434	3.48
88	1,591	364	.77142	3.30
89	1,227	297	.75796	3.13
90	930	238	.74422	2.97
91	692	187	.72990	2.81
92	505	144	.71513	2.67
93	361	108	.70012	2.54
94	253	80	.68490	2.41
95	173	57	.66900	2.29
96	116	40	.65260	2.16
97	76	28	.63643	2.04
98	48	18	.61810	1.94
99	30	12	.60406	1.80
100	18	7	.58438	1.67
101	11	5	.57071	
102	6	3	.54551	
103	3	2		
104	1	1		

A comparison of the above mortality tables with Farr's No. 3, brings out the fact that the English infants are sturdier than ours, for two more of each sex, out of every one hundred born, reach their first birthday, namely, eighty-three boys and eighty-six girls. Our youths, and young men and women, however, seem to have a firmer hold on life than do their cousins, as the p_x of the New York males is greater at each age from 4 to 24, and the female p_x from 3 to 39, than are the corresponding p_x in the English Table. The number of British males at birth is not reduced to one-half until age 45, one year later in life than is the case in the New York Table. And the English females at birth are reduced to one-half at age 47, three years earlier than in our local Table for females. The Expectation of Life for the average English boy is, at birth, 39.91 years; it is 38.95 years, or about one year less, for the New York boy. The corresponding span of life for the British girl is 41.85 years, while it is about one year more, or 42.96 years for the average girl in this city.

The following table gives the Expectation of Life at each age according to the English Table No. 3, and the New York Table:

TABLE F.

EXPECTATION OF LIFE ACCORDING TO THE FOLLOWING TABLES:

AGE	ENGLISH No. 3		NEW YORK CITY	
	Males	Females	Males	Females
	Years.	Years	Years.	Years.
0	39.91	41.85	38.95	42.96
1	46.65	47.31	46.59	49.73
2	48.83	49.40	48.53	51.50
3	49.61	50.20	48.84	51.80
4	49.81	50.43	48.67	51.64
5	49.71	50.33	48.20	51.24
6	49.39	50.00	47.62	50.68
7	48.92	49.53	46.95	50.01
8	48.37	48.98	46.20	49.27
9	47.74	48.35	45.40	48.46
10	47.05	47.67	44.55	47.61
11	46.31	46.95	43.66	46.74
12	45.54	46.20	42.76	45.84
13	44.76	45.44	41.88	44.96
14	43.97	44.66	41.01	44.10
15	43.18	43.90	40.15	43.25
16	42.40	43.14	39.30	42.41
17	41.64	42.40	38.47	41.58
18	40.90	41.67	37 65	40.76
19	40.17	40.97	36.84	39.93
20	39.48	40.29	36.05	39.12
21	38.80	39.63	35.29	38.34
22	38.13	38.98	34.55	37.58
23	37.46	38.33	33.83	36.84
24	36.79	37.68	33.12	36.11
25	36.12	37.04	32.42	35.38
26	35.44	36.39	31.73	34.66
27	34.77	35.75	31.05	33.94
28	34.10	35.10	30.38	33.23
29	33.43	34.46	29.71	32.52
30	32.76	33.81	29.05	31.83
31	32.09	33.17	28.40	31.15
32	31.42	32.53	27.75	30.46
33	30.74	31.88	27.11	29.78
34	30.07	31.23	26.47	29.09

TABLE F—*Continued.*

EXPECTATION OF LIFE.

AGE	ENGLISH No. 3		NEW YORK CITY	
	Males	Females	Males	Females
	Years.	Years.	Years.	Years.
35	29.40	30.59	25.83	28.41
36	28 73	29.94	25.20	27.71
37	28.06	29.29	24.58	27.03
38	27.39	28.64	23.96	26.34
39	26.72	27.99	23.34	25.65
40	26.06	27.34	22.74	24.97
41	25.39	26.69	22.13	24.29
42	24.73	26.03	21.53	23.62
43	24.07	25.38	20.92	22.97
44	23.41	24.72	20 32	22.32
45	22.76	24.06	19.74	21.68
46	22.11	23.40	19.16	21.04
47	21.46	22.74	18.60	20.39
48	20.82	22.08	18.04	19.74
49	20.17	21.42	17.49	19.08
50	19.54	20.75	16.94	18.43
51	18.90	20.09	16.40	17.78
52	18.28	19.42	15.85	17.16
53	17.67	18.75	15.31	16.55
54	17.06	18.08	14.78	15.96
55	16.45	17.43	14.24	15.39
56	15.86	16.79	13.71	14.84
57	15.26	16.17	13.19	14.30
58	14.68	15.55	12.67	13.78
59	14.10	14.94	12.17	13.26
60	13.53	14.34	11.68	12.76
61	12.96	13.75	11.20	12.25
62	12.41	13.17	10.73	11.75
63	11.87	12.60	10.27	11.25
64	11.34	12.05	9.83	10.77
65	10.82	11.51	9.42	10.31
66	10.32	10.98	9.02	9.85
67	9.83	10.47	8.62	9.40
68	9.36	9.97	8.24	8.95
69	8.90	9.48	7.88	8.52

TABLE F—*Continued.*

EXPECTATION OF LIFE.

AGE	ENGLISH No. 3		NEW YORK CITY	
	Males	Females	Males	Females
	Years.	Years.	Years.	Years.
70	8.45	9.02	7.52	8.10
71	8.03	8.57	7.18	7.69
72	7.62	8.13	6.85	7.31
73	7.22	7.71	6.51	6.96
74	6.85	7.31	6.17	6.66
75	6.49	6.93	5.84	6.42
76	6.15	6.56	5.52	6.18
77	5.82	6.21	5.19	5.93
78	5.51	5.88	4.87	5.68
79	5.21	5.56	4.59	5.42
80	4.93	5.26	4.33	5.14
81	4.66	4.98	4.09	4.87
82	4.41	4.71	3.88	4.60
83	4.17	4.45	3.69	4.33
84	3.95	4.21	3.50	4.09
85	3.73	3.98	3.33	3.87
86	3.53	3.76	3.17	3.67
87	3.34	3.56	3.02	3.48
88	3.16	3.36	2.87	3.30
89	3.00	3.18	2 74	3.13
90	2.84	3.01	2.61	2.97
91	2.69	2.85	2.48	2.81
92	2.55	2.70	2.36	2.67
93	2.41	2.55	2.25	2.54
94	2.29	2.42	2.15	2.41
95	2.17	2.29	2.04	2.29
96	2.06	2.17	1.96	2.16
97	1.95	2.06	1.82	2.04
98	1.85	1.96	1.73	1.94
99	1.76	1.86	1.50	1.80
100	1.68	1.76	1.10	1.67

At first glance, it may seem surprising that the mortality rates of this great American city should appear so favorable, when put alongside of those based upon the statistics of an entire country. But we should bear in mind that the English Table No. 3 was constructed from data gathered in 1841-1851, more than fifty years ago. Since then great advances have been made in medicine, surgery, and sanitation. The death rates of our city are much lower now than they were a generation ago, but we are unable to accurately measure the improvement for lack of previous investigations.

Much has been done to educate our people in hygiene and to better the sanitary conditions of their surroundings, but very much more remains undone. During the year 1900 there were 718 deaths in New York from typhoid fever. Properly filtered drinking water would reduce the deaths from this disease to a few sporadic cases imported from the country districts. Of the 70,872 deaths that took place in this city during 1900, 9,630, or 13.6 per cent., an average of twenty-seven deaths a day, were caused by consumption. There is no reason why this scourge can not be stamped out as completely as smallpox has been, from which latter disease there were but twelve deaths in New York during the year 1900. We, on this side of the Atlantic, are but beginning to talk of taking measures to eradicate the "great white plague," while in some places on the continent of Europe they have fixed the year, about a quarter of a century hence, in which the deaths from consumption will be zero.

UNIVERSITY OF CALIFORNIA LIBRARY

Gaylord Bros.
Makers
Syracuse, N. Y.
PAT. JAN. 21, 1908

YC 79088

267079
HB1401
.M5M7
UNIVERSITY OF CALIFORNIA LIBRARY